found that unreacted residual monomers may be efficiently removed from a (printed) polymer obtained by thiol-ene reaction and/or thiol-yne reaction by means of applying a cleaning solution containing an alkaline compound, a surfactant and an appropriate solvent. Without wishing to be bound by any theory, the inventors assume that due to an alkaline catalyzed thiol-ene reaction and/or thiol-yne reaction, residual monomers may be precipitated and the thus formed precipitates may be removed by the cleaning solution. Upon filtration of the cleaning solution (or otherwise removal of precipitates from the cleaning solution, such as by means of centrifugation or decantation), it may be reused in a further cleaning step.

[0008] Accordingly, an exemplary embodiment of the invention relates to a resin composition comprising:

[0009] at least one compound C1 having at least one terminal alkyne functional group;

[0010] at least one compound C2 having at least two thiol functional groups;

[0011] at least one compound C3 having at least one carbon-carbon double bond;

[0012] at least one photoinitiator; and

[0013] at least one stabilizer.

[0014] The resin composition as described herein is in particular suitable for printing, more specifically for use in stereolithography.

[0015] Accordingly, a further exemplary embodiment of the invention relates to the use of the resin composition as described herein as or in an ink.

[0016] The components of the resin composition as described herein may be in particular provided in a spatially separated manner, for instance in a kit, in particular a kit-of-parts. When the compound C1 having at least one terminal alkyne functional group and the compound C3 having at least one carbon-carbon double bond on the one hand and the compound C2 having at least two thiol functional groups on the other hand are provided in separate compositions (for instance spatially separated manner in a kit-of-parts), which are combined not until immediately prior to printing, a stabilizer may be dispensable (but may be nevertheless contained, for instance in smaller amounts).

[0017] Thus, an exemplary embodiment of the invention relates to a kit comprising: at least one compound C1 having at least one terminal alkyne functional group;

[0018] at least one compound C2 having at least two thiol functional groups;

[0019] at least one compound C3 having at least one carbon-carbon double bond;

[0020] at least one photoinitiator; and

[0021] optionally at least one stabilizer.

[0022] Furthermore, an exemplary embodiment of the invention relates to the use of the kit as described herein for preparing a resin composition for use as or in an ink.

[0023] As previously noted, when the compound C1 having at least one terminal alkyne functional group and the compound C3 having at least one carbon-carbon double bond on the one hand and the compound C2 having at least two thiol functional groups on the other hand are provided in separate compositions (for instance spatially separated manner in a kit-of-parts), which are combined not until immediately prior to printing, a stabilizer may be dispensable (but may be nevertheless contained, for instance in smaller amounts).

[0024] Thus, a further exemplary embodiment of the invention relates to a printing method comprising the steps of

[0025] providing a first ink portion comprising at least one compound C1 having at least one terminal alkyne functional group and at least one compound C3 having at least one carbon-carbon double bond;

[0026] providing a second ink portion comprising at least one compound C2 having at least two thiol functional groups;

[0027] wherein at least one of the first and the second ink portions further comprises at least one photoinitiator;

[0028] forming a resin composition from the first and the second ink portions, immediately followed by irradiating at least a part of the resin composition with an energy-carrying activation beam so as to cause polymerization of the at least a part of the resin composition and so as to obtain a polymer.

[0029] Moreover, an exemplary embodiment of the invention further relates to a printing method comprising the steps of

[0030] providing a resin composition as described herein; and

[0031] irradiating at least a part of the resin composition with an energy-carrying activation beam so as to cause polymerization of the at least a part of the resin composition and so as to obtain a polymer.

[0032] In addition, an exemplary embodiment of the invention relates to a polymer obtainable by the printing methods as described herein.

[0033] Moreover, an exemplary embodiment of the invention relates to an article comprising or formed from the polymer as described herein.

[0034] The polymer and the article obtained as described herein can be used for various appliances.

[0035] Accordingly, a further exemplary embodiment of the invention relates to the use of the polymer or of the article as described herein in a medical or biomedical application.

[0036] In addition, an exemplary embodiment of the invention relates to a composition comprising:

[0037] at least one compound C1 having at least one terminal alkyne functional group and/or at least one compound C3 having at least one carbon-carbon double bond;

[0038] at least one compound C2 having at least two thiol functional groups; and

[0039] at least one stabilizer selected from the group consisting of a radical scavenger, a phosphorous containing compound and a complexing agent.

[0040] Furthermore, an exemplary embodiment of the invention relates to a printing method comprising the steps of

[0041] providing a resin composition comprising at least one compound C1 having at least one terminal alkyne functional group and/or at least one compound C3 having at least one carbon-carbon double bond and at least one compound C2 having at least two thiol functional groups;

[0042] irradiating at least a part of the resin composition with an energy-carrying activation beam so as to cause polymerization of the at least a part of the resin composition and so as to obtain a polymer; and